Energy Policy Update

Energy and Environmental News

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This newsletter is published by the Governor's Office of Energy Policy and is provided free of charge to the public. It contains verbatim excerpts from international and domestic energy and environment-related publications reviewed by the Education and Community Outreach personnel. For inquiries, call **(602) 771-1143** or toll free **(800) 352-5499**. Compiled and edited by Gloria Castro, Special Projects Coordinator. To register to receive this newsletter electronically or to unsubscribe, email Gloria Castro.

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For your convenience, Arizona-related titles are highlighted in blue.

ARIZONA

Arizona, Utilities Fight EPA Plan to Reduce Power-Plant Haze

[Arizona Daily Star, July 31] PHOENIX - State officials and utilities are trying to kill a plan by the U.S. Environmental Protection Agency to force owners of three coal-fired power plants to install expensive pollution-control equipment to improve visibility. Henry Darwin, director of the state Department of Environmental Quality, said the federal proposal to reduce oxides of nitrogen, known in the business as NOx, will impose hundreds of millions of dollars of unnecessary costs on utilities, and, by extension, their customers. Darwin said the reduction has nothing to do with public health, instead focusing on EPA's claim that pollutants are impairing visibility in the Grand Canyon and other natural parks. But Darwin insisted there would be "no discernible identifiable difference" in visibility between the less-expensive plan his agency is pushing and what the EPA wants. Gov. Jan Brewer has her own take on the proposal.

Arizona Gets 2 Solar Zones

Plan eyes development in West

[Arizona Republic, July 24] The Interior Department released a final plan Tuesday for solar-power plants to be permitted and built quickly on 17 designated sites in the West, including two in Arizona. So far, most solar-power plants are built or planned on private or state land. The plan is significant because the federal government controls vast holdings of rural land that are suitable for solar. The Bureau of Land Management controls 12.2 million acres in Arizona. The plan is intended to help develop large solar-power plants as quickly as possible in places where they will work best, while also avoiding sensitive areas, which are set off from development. If fully developed into solar-power plants, the 17 sites could generate 5,700 megawatts of electricity in direct sunlight, with the potential for more to develop outside the zones. One megawatt of power-plant capacity is enough electricity to supply about 250 homes.

EPA's "Beyond Haze" Campaign Revs Up in Arizona

[Energy Prospects West, July 24] EPA announced this month that it would approve Arizona's plan to control

sulfur dioxide and soot at three big coal-fired power plants, but proposed stricter emissions limits for nitrogen oxides to reduce regional haze. The agency wants selective catalytic reduction (SCR) equipment installed at the Cholla plant, operated by Arizona Public Service, to cut NO_x emissions by 7,800 tons per year; at the Coronado Generating Station, owned by the Salt River Project, to reduce NO_x by 4,500 tons/year; and at the Apache Generating Station, owned by Arizona Electric Power Cooperative, for a reduction of 4,700 tons/year. The new requirements would improve visibility at 18 national parks and wildernesses, including the Grand Canyon, Saguaro National Park and the Petrified Forest, according to a press release. EPA will hold a workshop in Phoenix July 31 to solicit comments and says it will make a final decision on the regulations by November 15, 2012.

Grand Canyon Trust Announces $500,000 Grant to Cameron Chapter for Residential Photovoltaic Systems

Money will be used to bring reliable electrical source to community

[Navajo-Hopi Observer, July 31] FLAGSTAFF, Ariz. - The Grand Canyon Trust is pleased to announce that Cameron Chapter has been awarded a $500,000 grant for residential photovoltaic systems from the Renewable Energy Investment Fund (REIF). The grant will be used to help bring reliable residential electricity to families living in remote locations away from power lines. The Chapter is partnering with another Chapter's venture, Shaa'tohi (Shonto) Energy Solutions, to address the energy need. "We are excited to bring electrical power to the residents of Cameron Chapter," said Dorothy Scott, vice-president of Cameron Chapter. "This grant will help to fulfill a much needed service and will ultimately help to improve the quality of life for our people living within the Cameron area." The Cameron Chapter is one of 110 local governmental subdivisions of the Navajo Nation, and is located in the southwest corner of the Navajo Reservation, approximately 26 miles south of Tuba City, Ariz. Within the Navajo Nation government, the local Chapters are authorized to address the needs of their communities and constituents. A priority of the local leadership is to bring electric power to many of its residents that are living across remote areas and don't have the option to tie into a utility-grid power.

Greater Phoenix Launches Formal Protest against Solar Tariffs on China

[Business Wire, July 26] Phoenix - The Greater Phoenix Economic Council (GPEC) announced today that it is filing a formal letter of protest to the U.S. Department of Commerce and the International Trade Commission (ITC) against the tariffs on Chinese-manufactured photovoltaic cells and modules. The proclamation was made in Beijing, China at a GPEC-hosted event with representatives from solar industry associations, companies and foreign-direct investment agencies. GPEC is the only economic development organization in the country to take an official position on the U.S. ruling. As the premier economic development group for the Greater Phoenix, Arizona area, GPEC works closely with companies on their expansion and relocation plans, including a concentrated approach to those making a foreign-direct investment in the United States. In recent years, it championed a renewable energy-specific incentive that has drawn numerous solar companies to Arizona, including China-based Suntech. Additionally, there are another dozen Chinese companies with investments totaling $400 million that have identified Greater Phoenix as a potential location for their solar projects. In Arizona, approximately 9,128 direct jobs are associated with renewable energy companies and utility-scale projects. Recently, The Brattle Group estimated a solar tariff of 50 percent would result in job losses between 14,877 and 43,178 in 2014. With a 100 percent tariff in place, the loss of jobs is estimated to be between 16,917 to 49,589 jobs in 2014.

Hydro to Add Operations in Phoenix

[Electric Light & Power, Aug. 3] Linthicum, MD – Hydro is making adjustments to the structure of its aluminum extrusion network in the United States. The company has announced it will bring new fabrication activities to its plant in Arizona. Hydro announced in January that it had expanded its aluminum fabrication services in the U.S. with new operations, technical competence and increased customer support. At its plant in Phoenix, the company has added 60,000 square feet of manufacturing space dedicated to fabrication, including CNC machining and product assembly, and has doubled its number of engineers for customer and operational support. Hydro employs over 200 people in Phoenix, handling extrusion, drawn tube and aluminum remelt activities. The integration of the new operations is underway. With the addition of this new fabrication center, Hydro will let a previous agreement with The Offshore Group expire at the end of this year. The agreement covers metal fabrication work that Hydro has been contracting from a facility in Guaymas, Mexico.

Metrics for Wise Water Management Earns Award for ASU Doctoral Student

[ASU News, July 30] Arizona State University engineering doctoral student Elizabeth Martin is a winner of a Central Arizona Project (CAP) 2012 Award for Water Research. The award recognizes excellence in graduate or undergraduate research in areas related to water challenges facing Arizona, California and Nevada. CAP is the steward of the largest resource of renewable water supplies in Arizona. Martin is pursuing her doctorate in

civil engineering through the School of Sustainable Engineering and the Built Environment, a part of ASU's Ira A. Fulton Schools of Engineering. Her second-place award from CAP was based on her research paper "Value Intensity of Water Used for Electrical Generation in the Western U.S.; An Application of Embedded Resource Accounting." Martin is doing the research under the direction of assistant engineering professor Benjamin Ruddell, who is her doctoral studies faculty adviser. The winning paper describes Martin's examination of the water challenges likely to increase with the expected impacts of climate change and growing demand for water. Available water supplies will be affected by increasing temperatures and evaporation, decreased rainfall, and more intense droughts in the Southwest. At the same time, as population and industry continue to grow, resource demands will increase and become more concentrated around urban areas – particularly demands for electrical energy.

Navajo-Hopi Water Deal Collapses

Kyl unable to close deal before retiring

[Arizona Republic, July 23] The collapse of a long-sought Navajo-Hopi water settlement this month represents a lost opportunity for the tribes to secure reliable water supplies and for Sen. Jon Kyl to close one last tribal deal before he leaves office in January. Navajo lawmakers voted July 5 to reject the agreement and Kyl's enabling legislation, which would have authorized funding for water-delivery projects. The Hopi Tribal Council on June 21 narrowly approved the settlement but voted down Kyl's bill, a necessary component of the deal. The settlement required the approval of both tribes to move forward. Support for the agreement eroded after Kyl introduced the bill in February. Opponents framed the deal as unfair to the tribes, claiming its central component awarded groundwater that already belonged to the reservation communities. They also seized on a provision that offered the Navajos extra water if tribal leaders agreed to extend the land lease for a power plant near Page. The tribes could still try to salvage pieces of the settlement, but time has nearly run out to reintroduce it in Congress, where attention is focused almost exclusively on the election. Once Kyl retires, the tribes will lose their strongest and most knowledgeable advocate and the driving force behind many of the state's key water deals. Without a settlement, the tribes' claims to water would be decided in court, an option that would offer no guarantee of water and no promise of federal assistance to build pipelines, leaving thousands of people with a future of hauling water across the sprawling reservations.

Solar Energy Project; Largest Solar Installation Downtown

Maricopa County completing solar energy project; largest solar installation downtown

[Maricopa County News Release, July 19] Maricopa County is building what will become the largest solar array installation in downtown Phoenix, putting photovoltaic solar panel systems on three county-owned facilities this summer. Once installed, more than 5,000 solar panels will produce enough energy to power 169 homes annually and offset gas emissions from 266 passenger cars every year. And over a 20-year period, the electricity generated is the equivalent of 59 million pounds of carbon dioxide. Over a 30-year period, county officials estimate an energy savings of $5 million. "This is extremely exciting. For too long we have neglected the energy potential of over 300 days of sunshine each year," commented Supervisor Don Stapley, who has pushed solar energy development at the county. "We want to reduce our footprint on the environment. We see energy costs consume more of our tight budget. And we want to support our national energy and security goals."

The Home Performance Super Lab

[Home Energy Magazine, June 29] The SouthWest Building Science Training Center (SWBSTC) was created in 2004, in partnership with the Arizona Governor's Office of Energy Policy, and Foundation for Senior Living (FSL) Home Improvements. The center was created to develop and deliver a complete weatherization training program for the Arizona Weatherization Assistance program (WAP), using Training and Technical Assistance (T&TA) funding. Since that time, over 2,200 WAP and home performance professionals have come through our doors to attend classes on Energy Basics, Thermal Performance, Pressure Diagnostics, Combustion Safety, WAP for Admin, Infrared Imaging Basics, Lead RRP Certifications, BPI Certifications, WAP BootCamp, and OSHA 10- or 30-Hour Certifications. January 4, 2010, marked my first day as the energy training and technical assistance coordinator at the SWBSTC in Phoenix, Arizona. While I was lucky enough to walk into the most comprehensive pressure and combustion labs in Arizona for weatherization and home performance training, I found not only that SWBSTC had all but outgrown its 728 ft^2 modified mobile home for building science training, but that this mobile home was just not as representative of the local housing stock as we wanted it to be. While we were the only real choice in Arizona when it came to weatherization and building science training, we would not be happy until we finally built the Super Lab.

TUV Rheinland Lab in Tempe Moves On to Consulting Services

[Phoenix Business Journal, July 27] The TUV Rheinland Photovoltaic Testing Laboratory is branching out beyond just seeing which panels work and which don't to offering advice to those doing project development. The 4-year-old joint operation between the Cologne, Germany-based group and Arizona State University began offering consulting services earlier this month as a way to broaden its reach in the growing U.S. solar market.

ALTERNATIVE ENERGY AND EFFICIENCY

Geothermal in South America: Major Prospects for Development

With climate threats and increased energy demand, South American countries are set to develop their vast geothermal potential. Will developers be able to acquire investment and favourable policy?

[RenewableEnergyWorld.com, Aug. 1] New Hampshire, U.S.A. -- If any part of the world should be concerned about the effects of climate change, it is South America. Despite contributing some of the lowest emissions globally, many of the countries in the region are located in global-warming hotspots. As South America's population is expected to rise 72% by 2035, the impact of climate change grows more significant each day. Governments are reacting with renewable energy development — and geothermal power has several major prospects. **Burgeoning Potential -** South America has largely relied on hydropower, but its capacity is weakening. Though many regions have further untapped potential, most is located in remote regions with limited access to the grid, according to Meeting the Electricity Supply/Demand Balance in Latin America & the Caribbean, a report released by the Energy Sector Management Assistance Programme (ESMAP). Geothermal presents a major opportunity throughout South America, but exploratory drilling has been limited. According to the ESMAP report, the range of geothermal capacity estimates is quite broad. Though expectations may be uncertain, many regions are hopeful that exploration will reveal something more. 'Extrapolating from the experience in the US, where there has been a large amount of exploratory drilling, the potential of conventional geothermal resources in Latin America might be as much as 300 TWh per year,' the report states. The most viable resources are thought to be located along the Pacific Rim, which ranges from Mexico to Chile. Key spots in the Caribbean islands also carry some potential, according to researchers. **Policy Push -** Several South American countries have spearheaded policy incentives to move renewable energy plans forward. Countries of note include Argentina, Chile and Peru, according to the 2012 Geothermal International Market Overview Report released by the Geothermal Energy Association (GEA). Argentina implemented a feed-in tariff (FiT) plan for geothermal projects, with a 15-year entitlement period after the plant is brought online. The plan also includes a goal to reach 8% of renewable production by 2016. According to the GEA, 'Though a 1998 law supported wind and solar generation, geothermal did not become eligible as a renewable energy source until 2007. ... In May 2009, the Genren Program was launched, aiming to purchase and incorporate 1000 MW from renewable energy plants, 30 MW of which is to come from geothermal energy.' With geothermal potential of up to 16,000 MW, the Chilean government is ready to take advantage of its untapped renewable sources. To drive renewable development, the Chilean National Energy Commission partnered with the US Department of Energy (DOE) to create the Renewable Energy Center in Chile. According to its website, the DOE uses the facility to compile global renewable energy best practices and techniques to then use in the region.

Growing Number of Sub-500 kW PV Projects Provides US Job Creation and Cost Reductions

Encouraged by incentives and power requirements, agricultural land in the US is being converted to renewable PV energy

[SolarBuzz.com, July 23] Santa Clara, CA – While large-scale photovoltaic (PV) solar projects often grab the headlines, the recently-released NPD Solarbuzz *United States Deal Tracker* report indicates that 40% of PV projects currently underway in the United States are less than 500 kW in size. "These smaller projects have a considerable impact on the communities where they are being built, providing much-needed employment and energy cost reduction," said Christine Beadle, Analyst for NPD Solarbuzz. "They also represent a significant opportunity for downstream balance-of-systems component suppliers and PV systems integrators within the United States." The NPD Solarbuzz *United States Deal Tracker* report provides comprehensive details of commercial PV projects between 50 kW and 500 kW, which are often overlooked as opportunities for downstream PV suppliers and installers. In total, more than 1,300 projects fall into this category with a cumulative PV generation of up to 200 MW. Smaller PV installations often have a greater impact on communities than larger ones, as they become much more than just a supply of electricity. Smaller projects cost less to install, are easier to gain permit approval, and have fewer barriers for project financing. And these projects are often installed at no cost to the host. Schools, municipal buildings, zoos, hospitals, and even retail stores such as IKEA are typically the host of these smaller installs. The fact that 40% of all mid-size commercial installations in the United States (planned, under construction, or completed since January 2010) are these smaller projects highlights the amount of activity at this level and represents a growing revenue opportunity for

balance-of-systems PV suppliers.

Iowa, Nebraska Ethanol Output Cut amid Drought

[Associated Press, Aug. 3] Des Moines, IA – Ethanol plants are voluntarily slowing production as corn prices climb and supplies tighten amid a widespread drought that has generated discussion about whether more of the crop should be devoted to food production. Ethanol production nationally has dropped by 20 percent since the beginning of the year and is at a two-year low, said Bob Dinneen, CEO of the Renewable Fuels Association, a national trade group. The production drop-off is similar in Iowa, which produces about a third of the nation's ethanol, and in Nebraska, the No. 2 ethanol producer, it's down by about 30 percent, industry officials said. Ethanol plants in some states have temporarily halted production, including three of the 24 in Nebraska. The plants had planned to shut down for a week routine maintenance but extended that for a month, said Todd Sneller, administrator at the Nebraska Ethanol Board, a state agency responsible for developing the ethanol industry. Also, a plant in Aurora, Neb., that was supposed to start up in June has postponed its opening. All of Iowa's 41 plants remain in operation, although they are producing less. Some environmental and livestock groups have lobbied Congress to pressure the Environmental Protection Agency to relax its Renewable Fuel Standard, which requires the fuel industry to use about 12 billion gallons of ethanol a year. Critics say the requirement diverts too much corn from food to fuel production, increasing food prices.

Mexico Photovoltaic Project to Sell Electricity to CFE

[Electric, Light & Power, July 27] Hermosillo, Mexico — Sonora Energy Group Hermosillo, S.A. announced that the installed capacity of its solar energy project called SEGH-CFE 1 in Puerto Libertad, Sonora will increase to 46.8 MW. The original design was to build and operate a 39 MW solar project. However, after consulting further with our development and engineering partners, American Electric Technologies and ABB, the developers determined that a larger installed capacity will allow Sonora Energy Group Hermosillo to maximize its production permit and sell more than 106,728,000 kWh of electricity each year to the Comision Federal de Electricidad (CFE), Mexico's national utility. SEGH-CFE 1 is currently in construction on privately owned land immediately adjacent to CFE's 632 MW heavy fuel burning power generation station in Puerto Libertad, Sonora. The project is located about 110 miles south of the U.S. border.

NREL Study Shows Huge Renewable Potential

[Energy & Capital, Aug. 3] The National Renewable Energy Laboratory has published a report exploring domestic potential for renewable energy production and capacity. The report explored solar, wind, bio, thermal, and hydro power solutions. It concluded that overall, the total technical annual generation potential is roughly 481,800 terawatt-hours, while total technical cumulative capacity potential is around 212,224 gigawatts, *Greentech Media* reports. To put this in perspective, aggregate generation across the nation was 3,754 terawatt-hours in 2010.

Solar-Powered Plant a Precedent for Cost-Efficient Wastewater Treatment - BECC

[Business News Americas, Aug. 3] Mexico's first solar-powered wastewater treatment plant in Nogales, Sonora state, will provide a precedent for water utilities looking to reduce costs for wastewater treatment, María Elena Giner, general manager of the Border Environment Cooperation Commission (BECC), told BNamericas. Water utilities are the biggest electricity consumers in a municipality, and electricity is also the second biggest drain on a utility's resources, Giner noted. "This project has the triple benefit of reducing electricity consumption at the municipal level, reducing CO2 emissions and reducing a utility's cost of operations," said the manager. A tender for construction of the 902KW photovoltaic plant is currently underway and is expected to be awarded in August or September this year, said Giner. Construction of the solar plant is programmed to wrap in May 2013, providing an output of 1,572 MWh/year that will cover 100% of the electricity required for the Los Alisos wastewater treatment plant.

Sunlight Goes to Waste: India's Grid Failure

[RenewableEnergyWorld.com, Aug. 2] The spotlight on India's recent electric grid failure on July 30 and 31 has been determined the world's largest blackout. This event will no doubt spur some movement toward efficiency and discipline. India requires new and innovative thinking and effectiveness through structural change. This is also the time to focus on renewable energy, particularly solar photovoltaics. “India is the Saudi Arabia of renewable energy sources and, if properly utilized, India can realize its place in the world as a great power,” said Jeremy Rifkin, an economist and activist, in New Delhi in January, “but political will is required for the eventual shift from fossil fuels to renewable energy.” Even if 10% of India’s energy needs can be met by solar, it would be a huge contribution in taking the edge off peak load on the existing grid. Solar panel prices have dropped by over 50% during the past year, and those of the supporting hardware — including cables,

connectors, inverters — will continue to drop at a slower rate. Overall, system prices now are practically at “grid parity” — the price per unit of electricity is comparable to the price of coal-based power. This is especially the case when the costs of greenhouse gas emissions from burning coal, an “externality” until now, are taken into account. And we are even closer to grid parity when the average price includes the unsubsidized cost of diesel-based generation, frequently used when power fails. The attributes of the two kinds of electricity are different, however — one is polluting and causes global warming, the other is clean. One is continuous, and the other is intermittent. Yet the two can work with synergy, as net metering solutions work in the U.S. The “edge” solar power generating households contribute excess power to the grid during sunny days and draw from the grid when the sun does not shine. The net electricity bill for a solar power-generating household can be zero. In India, not only can solar generation work as a complement to the grid as above, but it can also alleviate having 400 million citizens without electricity. In the age of smartphones, broadband, HD televisions and microwaves, this absence seems hard to believe. Many of these people live in rural areas where grid extension is not economical; solar energy for self-sufficiency is one immediate and affordable solution.

ENERGY/GENERAL

Energy Experts: Outage Like India Unlikely in U.S.

[USA Today, July 31] WASHINGTON - A massive, countrywide power failure like the one in India on Tuesday is "extremely unlikely" in the United States, energy experts say. In India, three of the country's government-operated power grids failed Tuesday, leaving 620 million people without electricity for several hours. The outage, the second in two days in the country of 1.21 billion people, is the world's biggest blackout on record. The U.S. electricity system is segmented into three parts with safeguards that prevent an outage in one system from tripping a blackout in another system, "making blackouts across the country extremely unlikely," Energy Department spokeswoman Keri Fulton said. Early reports from government officials in India say excessive demand knocked the country's power generators offline. Experts say India's industry and economy are growing faster than its electrical systems. Last year, the economy grew 7.8 percent and pushed energy needs higher, but electricity generation did not keep pace, government records show. "We are much, much less at risk for something like that happening here, especially from the perspective of demand exceeding supply," said Gregory Reed, a professor of electric power engineering at University of Pittsburgh. "We're much more sophisticated in our operations. Most of our issues have been from natural disasters." The U.S. generates more than enough electricity to meet demand and always have power in reserve, Reed said.

Solar Superstorm Could Kill Millions, Cost Trillions

** Sun's geomagnetic blast could knock out U.S. power*
** Civilization would likely erode if electric grid went down*
** Solutions include mechanical fixes and local self-reliance*

[Reuters, Aug. 3] WASHINGTON - U.S. weather has been lousy this year, with droughts, heat and killer storms. But a solar superstorm could be far worse. A monster blast of geomagnetic particles from the sun could destroy 300 or more of the 2,100 high-voltage transformers that are the backbone of the U.S. electric grid, according to the National Academy of Sciences (NAS). Even a few hundred destroyed transformers could disable the entire interconnected system. There is impetus for a group of federal agencies to look for ways to prepare for such a storm this year as the sun moves into an active period called solar maximum, expected to peak in 2013. U.S. experts estimate as much as a 7 percent chance of a superstorm in the next decade, which seems a slight risk, but the effects would be so wide-ranging - akin to a major meteorite strike - that it has drawn official concern. Power blackouts can cause chaos, as they did briefly in India when more than 600 million people lost electricity for hours on two consecutive days in July. However, the kind of long-duration outage that might happen in the case of a massive solar storm would have more profound and costly effects. There is disagreement on how costly the damage would be, but experts in the U.S. government and industry acknowledge it is a complex problem requiring a coordinated solution. A report by the NAS estimated that about 365 high-voltage transformers in the continental United States are at risk of failure or permanent damage requiring replacement in the event of a solar superstorm.

INDUSTRIES AND TECHNOLOGIES

Algae Biofuel Technologies Ripe for $1.6 Billion Market by 2015

[SustainableBusiness.com, Aug. 3] Private sector investments, regulatory support and strategic partnerships are driving commercial production of biofuels derived from algae. That activity will fuel compound annual growth of 43% for algae biofuels technologies, driving the market to $1.6 billion by 2015, according to new SBI Energy research. "Strategic partnerships from ExxonMobil, Chevron, BP, Dow Chemical, Desmet Ballestra and many

others will drive the investment needed to successfully commercialize algae biofuels," says Shelley Carr, publisher of SBI. "Private investment and venture capital will also provide funding through 2015." The high yield per acre (up to 5,000 gallons of renewable oil per year on a single acre) and minimal environmental impact of algae biofuels make them one of the most viable and attractive biofuels. Government grants have been a major source of funding in the past. For example, in 2009, the sector received more than $100 million in funding from the U.S. Department of Energy. But the landscape began shifting amid the weak economy and federal budget cuts, with the private sector picking up some of the slack.

Problems for Solar Manufacturer Deepen

[PowerEngineering.com, Aug. 2] The financial struggles of Suntech Power Holdings, one of the world's largest manufacturers of solar panels, deepened this week after the company disclosed a potential fraud that could cost the company more than $680 million, according to a Suntech press release. Suntech provided loan guarantees for the Global Solar Fund, a solar development company. In return, $686 million in German government bonds were pledged as collateral for the loan guarantees. The company announced this week that the bonds may not exist and that it may be forced to make good on those guarantees. Already, the company must repay a $540 million debt that is due in March 2013.

Sales of 'Pure' Electric Cars Flicker, Plug-In Hybrids Gain

'Range anxiety' makes electric-only models a tough sell to many

[LA Times, July 30] LOS ANGELES - Since a new generation of electric cars went on sale 18 months ago, the results have been far from jolting. Sales of what are considered "pure" electric cars - they run off just a battery - have risen to slightly over 4,100 during the first six months of this year, up just 6 percent from the same period a year earlier, says auto-information provider Edmunds.com. The gain, which amounts to just 234 cars, comes even though Ford, BMW, Honda and Mitsubishi all have joined pioneer Nissan in offering electric vehicles. Analysts say electric cars' limited range and higher prices, as well as the lack of a widespread public charging infrastructure, have hurt the appeal of the vehicles. The pure electric cars have no back-up to power them when their batteries run out.

Sandia Labs Investigates New Offshore Wind Turbine Designs

[GizMag.com, Aug. 1] Albuquerque-based Sandia National Laboratories is conducting comprehensive research into the viability of vertical axis wind turbines (VAWTs) for offshore use. The design, previously considered impractical for large-scale applications, has the potential to transform offshore wind technology, making it a more economically viable energy source. The research is being conducted under a 2011 Department of Energy (DOE) solicitation for advanced rotor technologies for wind power generation in the United States. The US$4.1 million research project began in January of this year and will continue for five years. The first stage will last two years, during which time, several concept designs will be created and run through modern modelling software. The most workable of these will then be selected and undergo a three-year construction period before completing a rigorous test regime, measuring its effectiveness against the most extreme conditions that turbines must endure in an offshore environment. In the 1970s and 80s, VAWTs were actively developed as wind power generators, exhibiting simpler designs than their horizontal-axis cousins and proving generally more reliable. However, once wind turbines began to be scaled up in size, the lower cost of rotors for horizontal axis wind turbines (HAWTs) seemingly relegated VAWTs to the history books. The project will reassess the economic implications of large-scale VAWTs, with the goal of making them a cost effective and viable method for generating energy from offshore breezes. In doing so, it aims to address the national energy challenge of increasing the use of low-carbon generation.

Solar Cells Become More Affordable Through New Technology

Researchers announce new technology for solar cells

[HydrogenFuelCells.com, Aug. 3] Researchers from the U.S. Department of Energy's Lawrence Berkeley National Laboratory and the University of California have announced the development of a new technology that could revolutionize the manufacture of solar cells. Solar cells are variants of the traditional photovoltaic solar panels, capable of collecting more solar energy and producing higher quantities of electricity. Because of their advanced nature, solar cells have been quite expensive in the past. The cost of solar cells has delayed their adoption significantly over the years, a problem that researchers believe they have solved. *New technology enables solar cells to be made from a wider range of materials* **-** According to researchers, the new technology enabled the manufacture of affordable, highly efficient solar cells from nearly any semiconductor material, including those that are vastly abundant. Previously, such materials were considered unviable for the creation of solar cells because of their inability to be accurately manipulated through chemical means. This new technology changes that, however, allowing powerful solar cells to be made from such materials.

LEGISLATION AND REGULATION

Alternative Fuels for Govenment Deliveries 'Could Save $25bn by 2025'

[Environmental Leader, Aug. 3] By allocating just 20 percent of its $150 billion transportation services budget to carriers that fuel their fleets with domestically produced natural gas, electricity, biofuels and other alternatives to diesel and gasoline, the US government could save the taxpayer up to $7 billion annually and about $25 billion by 2025, according to a report from nonprofit the American Clean Skies Foundation. Oil Shift: The Case for Switching Federal Transportation Spending to Alternative Fuel Vehicles says that a gradual fuel shift, beginning in 2015, would also reduce oil imports by billions of gallons annually; cut greenhouse gas pollution by over 20 million metric tons a year; and stimulate the nationwide introduction of tens of thousands of new alternative fuel vehicles.

Amid a Political Calm, a Tax Break for the Wind Industry Advances

[New York Times, Aug. 2] It has been a tough year for companies in alternative energy. Ever since Solyndra, a solar module maker, cost taxpayers half a billion dollars when it went bankrupt last September, Republicans have attacked subsidies for solar, wind and biofuels. Those subsidies have been steadfastly supported by President Obama, even as the presumptive Republican presidential nominee, Mitt Romney, has attacked them as a waste of money. On Thursday, the wind industry convinced a key Senate committee that green can be good politics in red states as well as blue ones. The Senate Finance Committee voted to renew a tax credit for wind power that is set to expire at the end of this year, with several Republicans joining Democrats to support extending the credit for one more year at a cost of $3.3 billion. The provision, which will apply to projects under construction by the end of 2013, was included in a $200 billion package of popular tax breaks that the committee passed on a bipartisan 19-5 vote. The bill is expected to go to the Senate floor when Congress returns from summer recess, although it is unclear if the House will take up similar legislation.

U.S. Raises Tariffs on Chinese Wind-Turbine Makers

[New York Times, July 27] Chinese manufacturers have been illegally selling steel towers for wind turbines below the cost of production and will have to pay duties of 20.85 to 72.69 percent on imports, the United States Commerce Department said Friday in a preliminary ruling in an antidumping case brought by four American tower manufacturers. The department said it found similar dumping on the part of Vietnamese manufacturers and set duties at 52.67 percent for CS Wind, a major supplier to the American market, and 59.91 percent for all other Vietnamese companies. The finding is the fourth this year in favor of American wind and solar manufacturers and is likely to intensify tension with the Chinese, who have been rapidly expanding manufacturing capacity for alternative energy technologies and flooding global markets with inexpensive products, especially solar panels. Earlier this year, the Commerce Department ruled that China was dumping solar panels on the American market and imposed duties of 31 percent on most of the imports, which added to earlier duties imposed over what the department said were unfair subsidies for its manufacturers.

WESTERN POWER

California Geothermal Plant Expansion Receives Approval

[RenewableEnergyWorld.com, Aug. 3] Washington, D.C. - Southern California Edison's San Onofre nuclear power plant has been down since January 31, but the damaged reactors may restart by the end of the year, the operator has told press. The loss has affected 1.4 million homes as well as voltage support to the transmission system, causing some experts to question the stability of Southern Californian infrastructure. Tentative dates for repower are Nov. 18 for the Unit 2 reactor and Dec. 31 for Unit 3. On the geothermal side of the spectrum, the Heber geothermal plant owned by Ormat Technologies is expected to get four more wells. The additional wells will maintain the plant's capacity, Ormat's Charlene Wardlow was quoted via ivpressonline.com, and were approved by the Imperial County Planning Commission. During the decision, Imperial resident Juan Zarate called for geothermal developers to provide community benefits to the county. Wardlow responded that royalties are provided to the private land owners were the plant is located; in places like Sonoma the plant is located on public lands, which is why that county receives royalties, she was quoted. The recent Aruvians Research report, "Analyzing Geothermal Power in the U.S.," reaffirmed California's position as a world leader in the geothermal business.

First Solar Announces New California Plant, CEO Hughes Joins Board

[Phoenix Business Journal, Aug. 1] First Solar Inc. is building a new power plant in California and will have a new board member in CEO James Hughes. The company made both announcements on Wednesday, around

the time it sent out its second-quarter financial reports that showed it making $111 million for the three months that ended June 30. The Tempe-based company (Nasdaq: FSLR) will build a 139-megawatt power plant called Campo Verde Solar Project near El Centro, Calif. Power from the plant will go to San Diego Gas & Electric on a 20-year agreement. It marks the first deal between First solar and San Diego Gas & Electric. The project is expected to start construction in the next few months and will be done in 2013.

Interior IDs 17 Solar Energy Zones in West

[Energy Prospects West, July 24] The Department of Interior, in conjunction with the Department of Energy, on July 24 released the final programmatic environmental impact statement for 17 solar energy zones in six western states. The final PEIS will serve as the roadmap for utility-scale solar development on federal land, according to Interior. The initial set of solar energy zones identifies 285,000 acres on Bureau of Land Management land in Arizona, California, Colorado, Nevada, New Mexico and Utah that are most suitable for utility-scale solar development. The PEIS also allows for development on an additional 19 million acres in "variance" areas lying outside of designated solar energy zones. The new energy zones have excellent solar resources, as well as being near transmission, and have relatively low conflict with biological, cultural and historic resources, Interior said, in a prepared statement. The PEIS was developed by Interior in partnership with DOE.

SDG&E Dedicates Sunrise Powerlink Transmission Line

[Electric Light & Power, July 26] San Diego, CA – San Diego Gas & Electric and local officials gathered to officially inaugurate the Sunrise Powerlink transmission line. The dedication ceremony was held at SDG&E's new Suncrest Substation, an electric facility that is a key component of the Sunrise Powerlink. The 117-mile, 500-kV Sunrise Powerlink will carry clean energy from developing solar and wind farms in California's Imperial Valley to San Diego and enable SDG&E to increase the amount of renewable power it delivers to 33 percent by 2020, a key California environmental initiative. SDG&E has signed eight power contracts for more than 1,000 MW over the past several years for solar and wind energy in Imperial County, solidifying the company's commitment to expand its renewable portfolio to 33 percent. Two of these renewable projects are now under construction. After a comprehensive five-year environmental review and permitting process, SDG&E broke ground on the project in December 2010. By reducing the original construction timeline from 24 months to just 18 months, SDG&E was able to complete the project in time to help meet summer power demands in the region. On June 17, the transmission line was fully energized and control was officially transferred to the state's transmission grid controller, the California Independent System Operator (Cal-ISO). The Sunrise Powerlink consists of more than 110 miles of overhead 500kV and 230kV transmission towers and transmission line, six miles of underground 230kV cable and a 40-acre, 500kV transmission substation. During construction, SDG&E crews adhered to some of the most rigorous environmental requirements ever placed on a transmission line project in California history.

The Solar Trailer that Could: Energy Innovation Inside Navajo Nation

[Good Environment, July 26] It's early afternoon and Brett Isaac, a barrel-chested 27-year-old whose soft-spokenness gives the impression of a gentle giant, is explaining the purpose of the solar trailer hitched to the back of his truck. "One thing we never think about is that each of us produces energy," Isaac, renewable energy Project Manager for the Shonto Community Development Corporation in Navajo Nation, tells a group of adolescent summer campers gathered against a middle school wall. "We produce heat and we produce activity. There's no reason why we couldn't produce energy in our own homes." We're in Zuni, a small town within the Zuni Pueblo reservation just south of Gallup in Western New Mexico. As part of a weeklong Zuni Enrichment Project Summer Camp, the elementary and middle schoolers will be camping on a remote ranch for a few days, during which time the solar trailer will be their only source of electricity. Meant to promote a healthy lifestyle and provide valuable education for Zuni youth who otherwise would lack access or means to attend summer camp, the time on the ranch will primarily be used to familiarize them with Zuni traditions. The Zuni, a Pueblo peoples, have lived in their present location along the Zuni River for over 3,000 years. Currently they number around 10,000—the vast majority live on the reservation.

ARIZONA STATE INCENTIVES/POLICIES

ARIZONA COMMERCE AUTHORITY (ACA)

- Angel Investment Tax Credit Program The main objective of the Angel Investment program is to expand early stage investments in targeted Arizona small businesses. The program accomplishes this goal by providing tax credits to investors who make capital investment in small businesses certified by the Arizona Commerce

Authority (ACA). To view the list of businesses that have been certified under this program please click here.

Income Tax Credit Provisions
An investor seeking an income tax credit must document to the ACA the investment was made in either a qualified rural or bioscience company or any other qualified small business. For a qualified bioscience or rural company, the tax credit may total up to 35% of the investment amount over three years; for any other qualified business, the tax credit may total up to 30% over three years. If the tax credits exceed the investor's income tax liability, any unused tax credit amount may be carried forward for up to three taxable years as long as the investor timely claims the credits with Revenue.

The ACA may authorize up to $20 million in tax credits to qualified investors beginning July 1, 2006 through June 30, 2016. The tax credits will be authorized on a first come, first served basis, which is established by the date and time the investor files an application with the ACA. Download the Angel Tax Credit Allocation Table Angel Tax Credit Allocation Table to view the remaining amount of tax credits available. For more detailed information please see below or direct questions to the Program Manager.

- Arizona Innovation Accelerator Fund **-** The Arizona Innovation Accelerator Fund Program is an $18.2 million loan participation program funded through the U.S. Department of Treasury's SSBCI and managed by the Arizona Commerce Authority. The goal of this program is to stimulate financing to small businesses and manufacturers, in collaboration with private finance partners, to foster business expansion and job creation in Arizona.

- Arizona Innovation Challenge - The Arizona Innovation Challenge is an investment in the minds of talented entrepreneurs in Arizona and around the world. The ACA will award $1.5 million to the most promising technology ventures that participate in the Challenge (awards may range from $100,000 to $250,000).

- AZ Fast Grant - Technology Commercialization Assistance - *Next round of grants opening in mid November. This* competitive grant enables Arizona-based technology companies to initiate the commercialization process. The grant will pay up to $7,500 to provide one or more of the following professional consulting services:

  - An expert review of the technology under development to determine if it already exists, is a good candidate for intellectual property protection and is likely to find an attractive market.
  - A commercialization feasibility study to identify showstoppers to commercialization before resources are spent commercializing a technology that is unlikely to succeed.
  - Other commercialization assistance such as training or preparation for the submission of a federal SBIR/STTR grant application or another acceptable means of technology commercialization.

- AZ Step Grant - Grant funding from the U.S. Small Business Administration (SBA) with matching funds contributed by the Arizona Commerce Authority (ACA) offering a number of services and tools to Arizona small businesses as they go global for the first time with sales or enter new, international markets.

- Commercial/Industrial Solar Energy Tax Credit Program - The primary goal of the Commercial/Industrial Solar Energy Tax Credit Program is to stimulate the production and use of solar energy in commercial and industrial applications by subsidizing the initial cost of solar energy devices. The program achieves this goal by providing an Arizona income tax credit for the installation of solar energy devices in Arizona business facilities. For more detailed information please see below or direct questions to the Program Manager.

- Healthy Forest - Harvesters, initial processors and transporters of small diameter timber, may receive: Transaction Privilege Tax Exemptions, Use Tax Exemption and New Job Income Tax Credits.

- Job Training Program offers job specific reimbursable grants for employers creating new jobs or increasing the skill and wage level of their current employees. Deadline: Year Round

- Renewable Energy Tax Incentive Program offers a refundable income tax credit and property tax reduction to companies in solar, wind, geothermal and other renewable energy industries who are expanding or locating a manufacturing or headquarters operation in Arizona. The tax credit is up to 10% of the total qualified investment amount and the property tax benefit can reduce a company's property taxes by up to 75%. **Deadline: Year Round**

- Research and Development Tax Credit is an Arizona income tax credit for increased research and development activities conducted in this state. Starting in 2010, a qualifying company may be eligible to claim a partial refund of its current year excess R&D credit. **Applicants may apply at the end of their tax year but prior to filing a tax return with Revenue.**

- Quality Jobs Tax Credit Program Beginning July 1, 2011, this new program provides Arizona income tax credits for companies creating new jobs and investing in Arizona. The credit is valued at up to $9,000 over a 3-year period per each new employee and offers a 5-year carry forward provision for any unused tax credits. Eligibility qualifications are different for rural and metro areas.

- Bonds Administered by the Arizona Commerce Authority.

- Federal Programs

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- Pollution Control Tax Credit - Provides a 10 percent income tax credit on the purchase price of real or personal property used to control or prevent pollution.

- Renewable Energy Production Tax Credit - An income tax credit awarded to utility-scale generation systems based on the amount of electricity produced annually for a 10-year period using solar or wind energy. Questions can be directed to Georganna Meyer (602-716-6927) or Elaine Smith (602-716-6924).

- **Sales Tax Exemption for Machinery and Equipment** - Exemptions are available for:

    1. Machinery or equipment used directly in manufacturing, see ARS 42-5159(B)(1).
    2. Machinery, equipment or transmission lines used directly in producing or transmitting electrical power, but not including distribution, see ARS 42-5159(B)(4).
    3. Machinery or equipment used in research and development, see ARS 42-5159(B)(14).

Questions can be directed to Christie Comanita (602-716-6791).

- Solar Liquid Fuel Tax Credit - Income tax credits are available for research and development, production and delivery system costs associated with solar liquid fuel. Questions can be directed to Georganna Meyer (602-716-6927) or Elaine Smith (602-716-6924).

- **Database of State Incentives for Renewables and Efficiency (DSIRE)**

    - Arizona Incentives/Policies
    - Federal Incentives/Policies
    - Solar Policy News - DSIRE provides summaries of current solar policy developments and an archive of past solar policy developments. Current solar news appears below the news archive, which is searchable by several criteria.

GRANTS

The following solicitations are now available:

Solar Energy Evolution and Diffusion Studies (SEEDS)
Through the Solar Energy Evolution and Diffusion Studies (SEEDS) Funding Opportunity Announcement (FOA), the Department of Energy will invest up to $9 million over three years to support research on solar energy innovation dynamics and technology adoption patterns. SEEDS supports the development of a diversity of analytical, numerical, and computational tools and methods; implementation of pilot test strategies for modifying current business and policy practices; and assessment of pilot tests outcomes for impact and scalability. Through SEEDS, the Department of Energy seeks to launch a series of systematic investigations that will result in viable methods for dramatically transforming the operations of solar researchers, manufacturers, developers, installers, and policymakers. Selected research efforts will be performed in tandem

with industry partners to ensure that results can be applied, tested, and modified in real time. Concept Paper Submission Deadline: 7/13/2012 5:00 PM ET. Full Application Submission Deadline: 9/17/2012 5:00 PM ET. Refer to Sol#DE-FOA-0000740. Use the following link to view this opportunity: https://eere-exchange.energy.gov/#FoaId10542e0d-3c44-459e-8a26-8d01538ed75b

Office of Science
The U.S. Department of Energy announces its continuing interest in receiving applications for the Office of Science Financial Assistance Program. Areas of interest include, but are not limited to: Basic Energy Sciences and Biological and Environmental Research, and Workforce Development for Teachers and Scientists. Subtopics include Solar Photochemistry Research, and Climate Sciences. $400 million expected to be available, multiple awards anticipated. Refer to Sol# DE-FOA-0000600. (Grants.gov 9/30/11) Responses due 9/30/12. For more info, contact Kimberlie Laing at kim.laing@science.doe.gov or go to: https://www.fedconnect.net/fedconnect/?doc=DE-FOA-0000660&agency=DOE.

U.S. Navy Energy Conservation Projects
The Naval Surface Warfare Center has issued a Broad Agency Announcement for White Papers that address Energy Conservation Applications for the U.S. Navy. This BAA solicits innovative concepts for Navy shipboard energy conservation and carbon footprint reduction with the potential for rapid transition to Fleet operation. The target segment of the Fleet is the ships operated by Military Sealift Command. The selection of one or more sources for full proposals and potential contract award will be based on responses to the BAA and the peer review process. For more info, contact Jamie Mattern at james.g.mattern1@navy.mil or go to: https://www.fbo.gov/?s=opportunity&mode=form&id=f4ea9da536f0413f20b80d9f02707b7e&tab=core&_cview=0 .
Refer to BAA# N00167-11-BAA-01. (FBO 11/3/10). Responses accepted to 10/31/12.

National Science Foundation, Energy for Sustainability. This program supports fundamental research and education that will enable innovative processes for the sustainable production of electricity and transportation fuels. Processes for sustainable energy production must be environmentally benign, reduce greenhouse gas production, and utilize renewable resources. Current interest areas in sustainable energy technologies are biomass conversion, biofuels & bioenergy, photovoltaic solar energy, wind energy and advanced batteries for transportation. Expected Number of Awards, 42. Estimated total program funding, $9,200,000. Due dates, full proposal window: January 15, 2013 - February 19, 2013. For more information http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501026

United States Department of Agriculture – Rural Development Energy Programs

ENERGY-RELATED EVENTS

- **Texas Wind 2012 Energy Conference**
  July 31 – August 1, 2012 – San Antonio, Texas

- **National Geothermal Summit**
  August 7 – 8, 2012 – Sacramento, California

- **Renewable Energy and Energy Efficiency for Tribal Community Development**
  August 7 – 9, 2012 – Milwaukee, Wisconsin

- **GovEnergy 2012: The Gateway to Smart Energy Solutions**
  August 19 – 22, 2012 – St. Louis, Missouri

- **Western Regional Gas Conference 2012**
  August 21 – 22, 2012 – Tempe, Arizona

- **Solar Power International 2012**
  September 10 – 13, 2012 – Orlando, Florida

- **Plastics in Photovoltaics 2012**
  September 19 – 20, 2012 – Phoenix, Arizona

- **2012 Excellence in Building Conference & Expo**
  September 25 – 27, 2012 – Scottsdale, Arizona

- **34th International Telecommunications Energy Conference (Intelec)**
  September 30 – October 4, 2012 – Scottsdale, Arizona

- **Border Energy Forum XIX**
  October 22 – 24, 2012 – Hermosillo, Sonora Mexico

- **AWEA Wind Energy Fall Sympsium**
  November 13 – 17, 2012 – Chandler, Arizona

- **Greenbuild 2012 International Conference & Expo**
  November 14 – 16, 2012 – San Francisco, California

- **4th PV Power Plants Conference – USA 2012**
  November 28 – 29, 2012 – Phoenix Arizona

- **Energy, Utilities & Environment Conference (EUEC) 2013**
  January 28 – 30, 2013 – Phoenix, Arizona

- **Green Building Lecture Series**
  Granite Reef Senior Center – 1700 N. Granite Reef Road, Scottsdale, Arizona